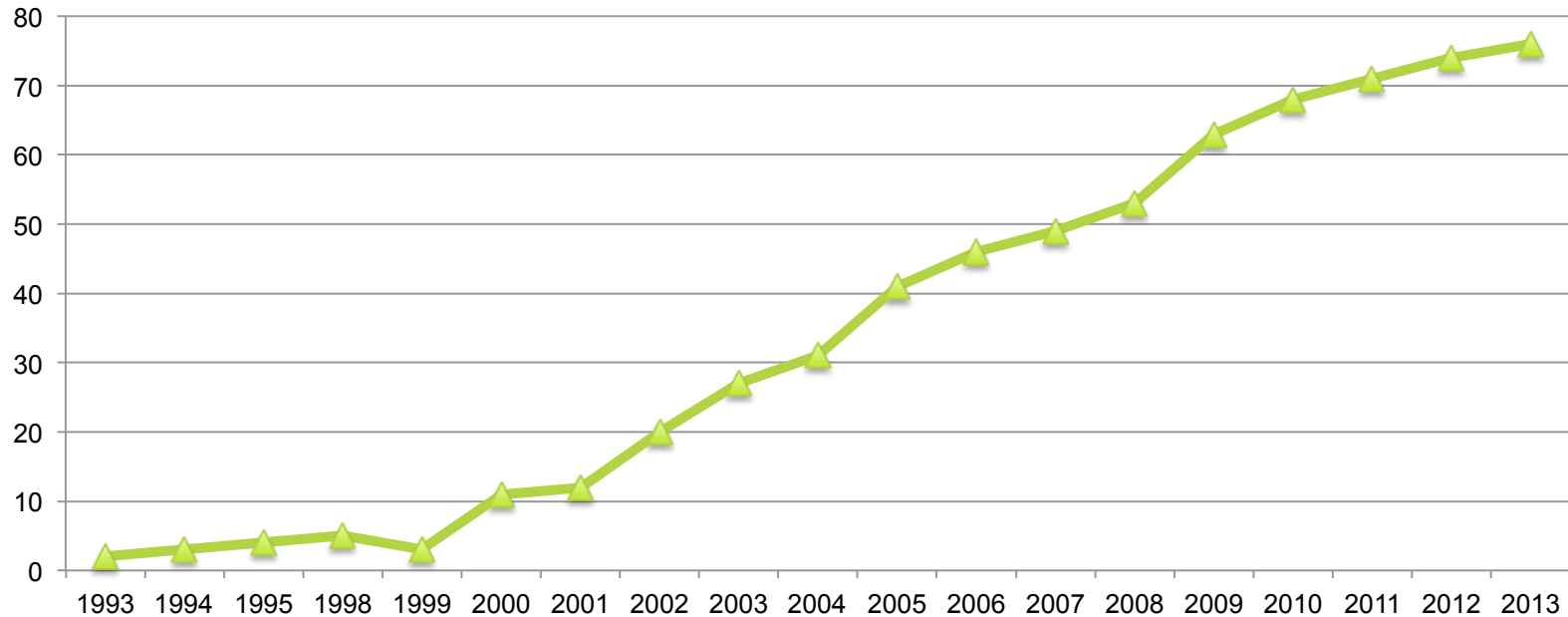


Increase Test Coverage in Linux-based OS

Victor Rodriguez : Linux fan
Guillermo Ponce: AWK maniac

Growth of Linux Distributions

Number of Linux distributions



What about QA ?

Do we have the same growth ?

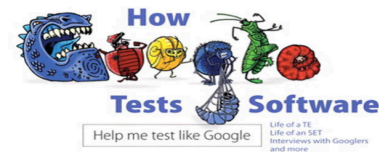
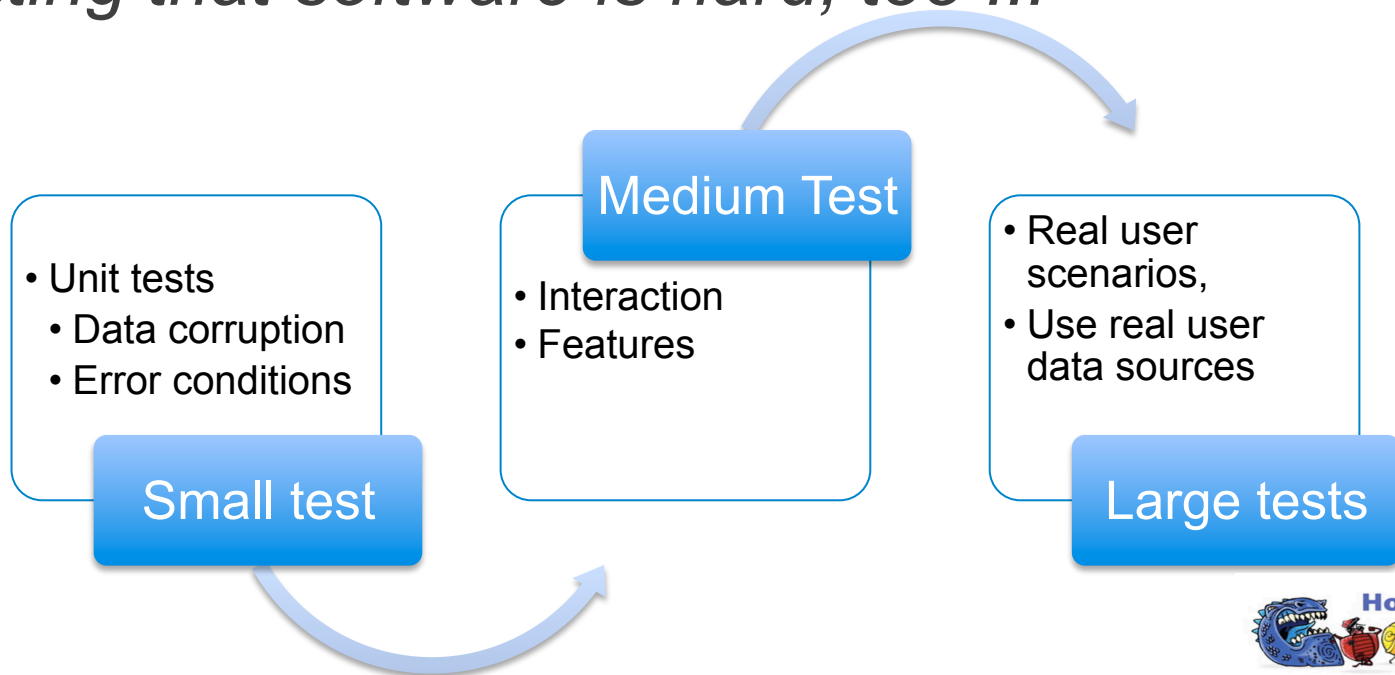




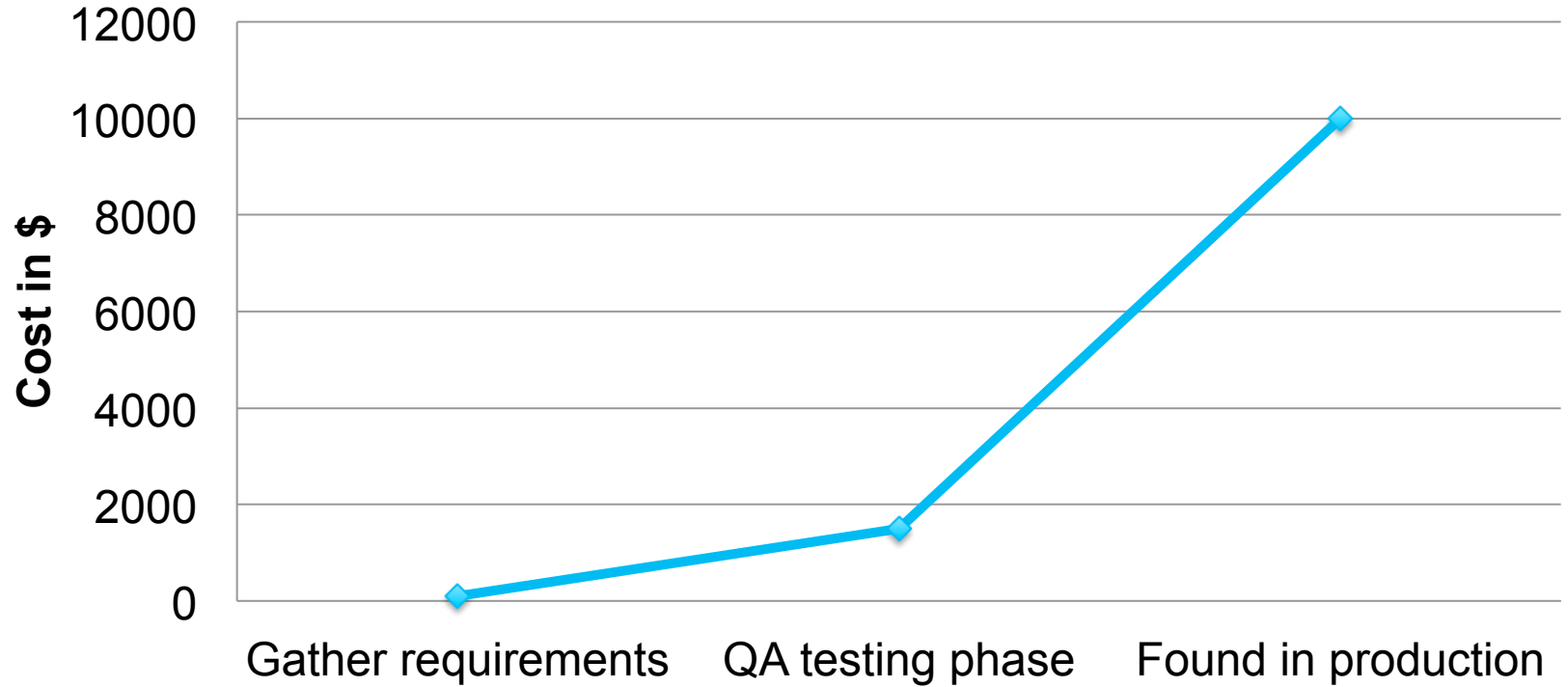


Software development is hard.

Testing that software is hard, too !!!



The cost of a BUG !!!



Why we are not enabling small tests ?



Make test



Make check



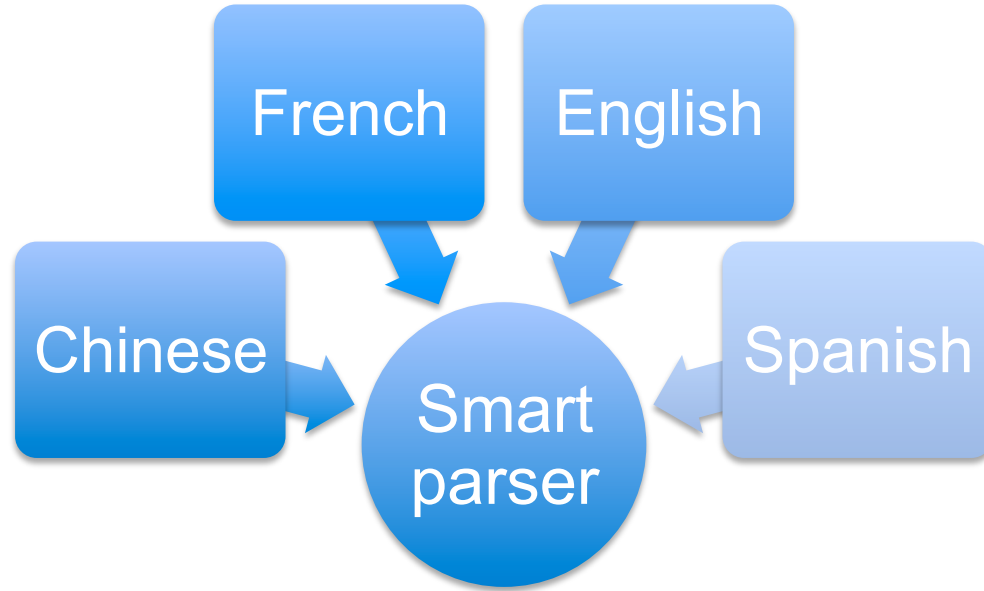
Make test



Make check



How do we fix it in Clear Linux ?



Examples of outputs

Testsuite summary for augeas 1.4.0

```
# TOTAL: 95
# PASS: 85
# SKIP: 10
# XFAIL: 0
# FAIL: 0
# XPASS: 0
# ERROR: 0
```

ACL Tests

```
*** malformed-restore.test ***
[19] $ rm tmp.acl -- ok
13 commands (13 passed, 0 failed)
*** sbits-restore.test ***
17 commands (17 passed, 0 failed)
*** utf8-filenames.test ***
7 commands (7 passed, 0 failed)
```

xmlsec1

merlin-xmldsig-twenty-three/signature-x509-is

Checking required transforms	OK
Checking required key data	OK
Create new signature	Fail
Verify new signature	Fail

merlin-xmldsig-twenty-three/signature-x509-ski

Checking required transforms	OK
Checking required key data	OK
Create new signature	Fail
Verify new signature	Fail

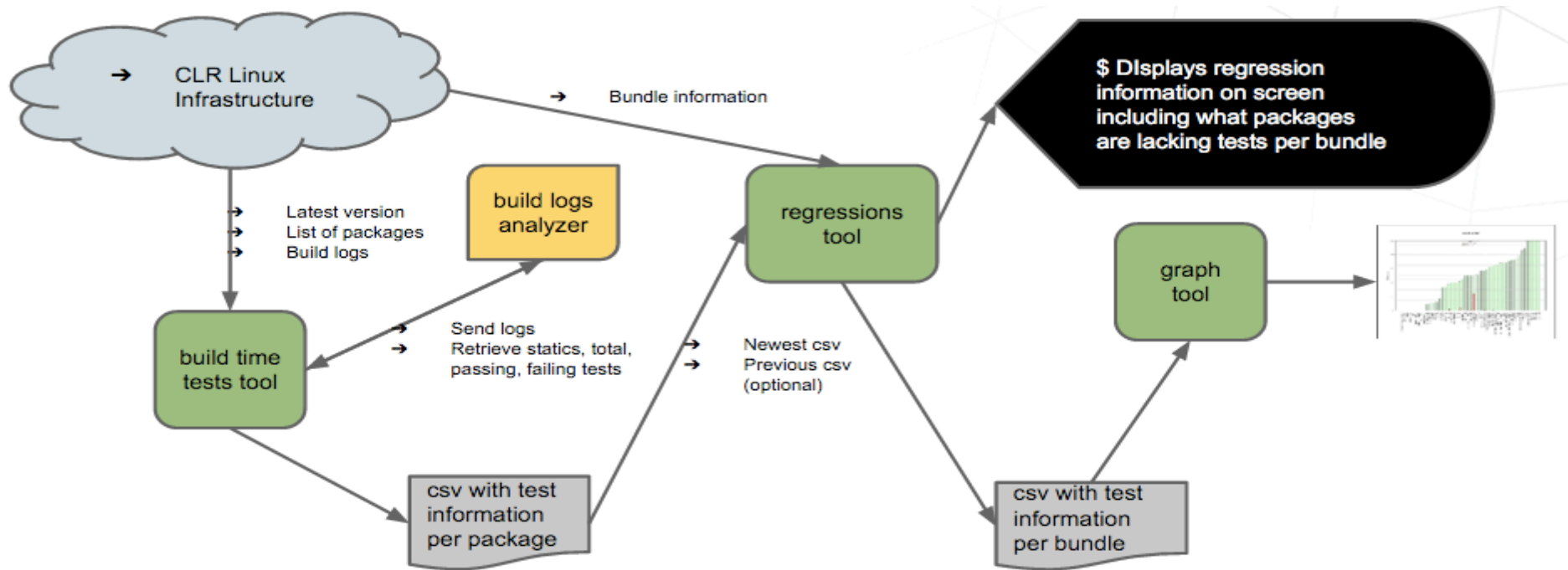
Examples of Parsers

```
#
#augeas
#
if ($line =~ /^ TOTAL: +([0-9]+)/ and $incheck == 1) {
    $total_tests += $1;
}
if ($line =~ /^ PASS: +([0-9]+)/ and $incheck == 1) {
    $total_pass += $1;
}
if ($line =~ /^ SKIP: +([0-9]+)/ and $incheck == 1) {
    $total_skip += $1;
}
if ($line =~ /^ FAIL: +([0-9]+)/ and $incheck == 1) {
    $total_fail += $1;
}
if ($line =~ /^ XFAIL: +([0-9]+)/ and $incheck == 1) {
    $total_xfail += $1;
}
if ($line =~ /^ XPASS: +([0-9]+)/ and $incheck == 1) {
    $total_pass += $1;
}
}
```

```
#
#xmlsec1
#
if ($line =~ /^      [\w ]+\ +OK$/ and $incheck == 1) {
    $total_pass++;
    next;
}
elseif ($line =~ /^      [\w ]+\ +Fail$/ and $incheck == 1) {
    $total_fail++;
    next;
}
elseif ($line =~ /^      [\w ]+\ +Skip$/ and $incheck == 1) {
    $total_skip++;
    next;
}
}
```

```
#
#ACL
#
if ($line =~ /[0-9]+ commands \(([0-9]+) passed, ([0-9]+) failed\)/) {
    $total_pass += $1;
    $total_fail += $2;
}
}
```

Full architecture



<https://github.com/clearlinux/autospec/blob/master/autospec/count.pl>

Shifting left quality in Clear Linux project



Component
Development

Clear
Linux
Focus

Integration

CI

Release
Process

Traditi
onal
QA

**850000
tests**

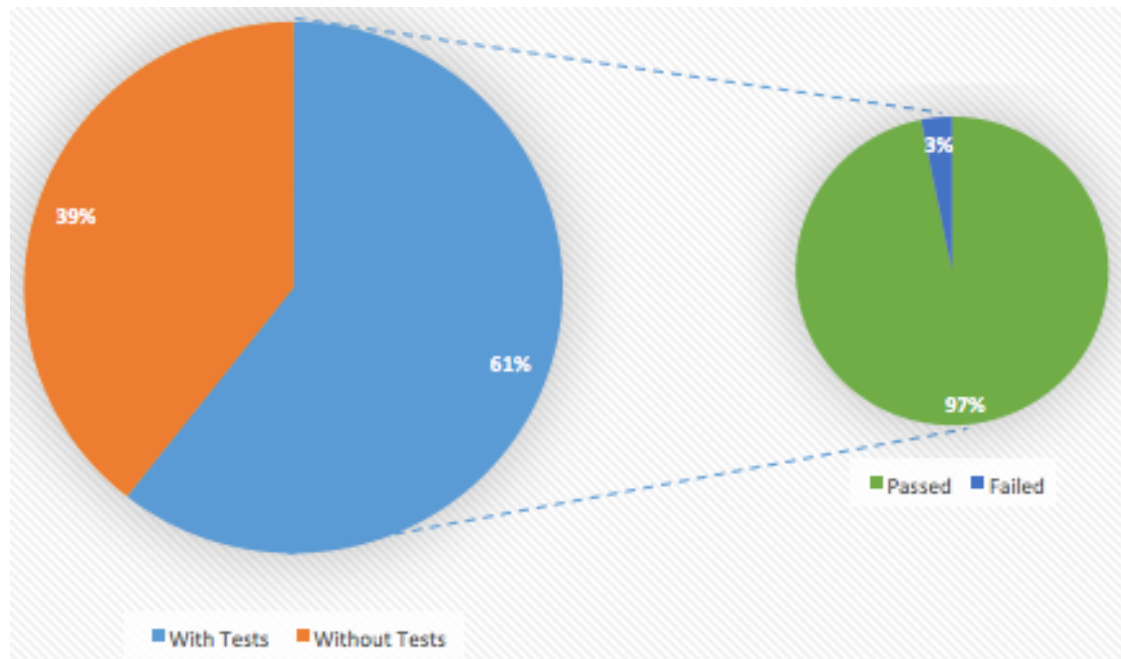
Shifting left CI

**5000
tests**

Continuous
Integration

**1000
tests**

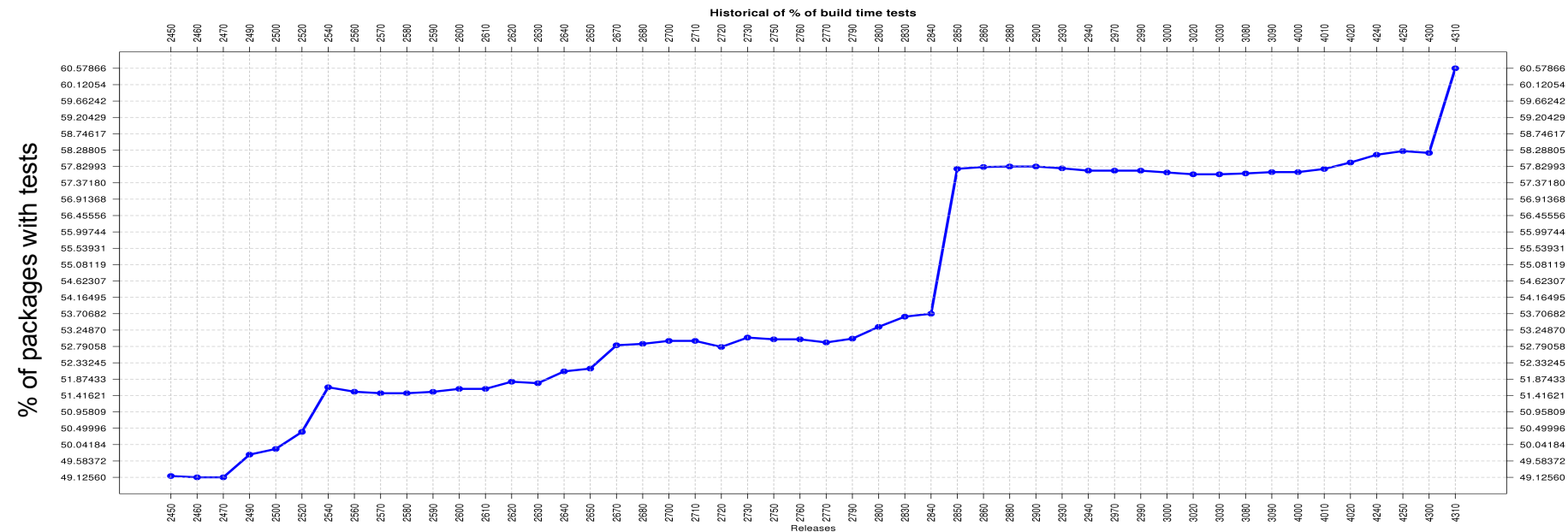
Results in Clear Linux project



% of packages with tests

% of pass rate

History of growth



Clear Linux Releases

Wait ... How many parsers do we have so far ?

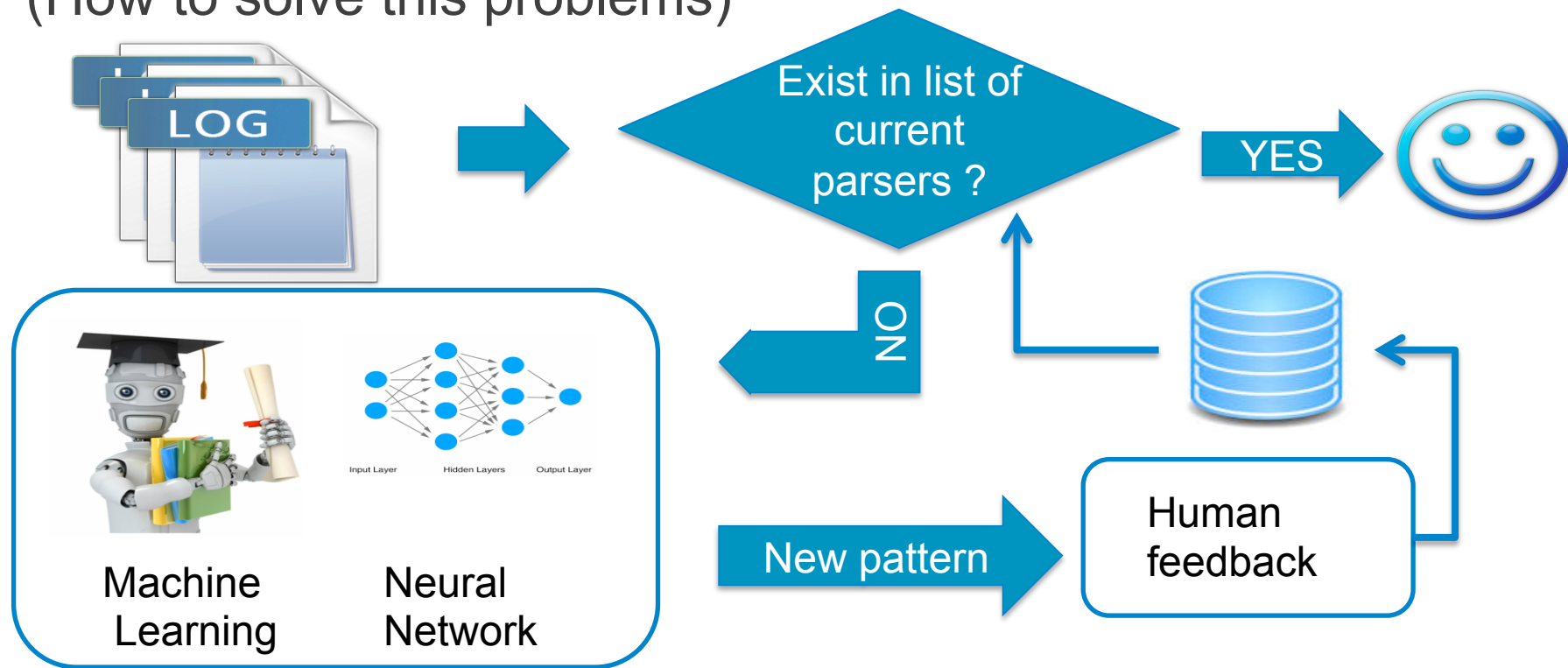
26 and counting ...

Thanks for the lack of standards ☹



Future Work

(How to solve this problems)





WE'RE HIRING

Thanks !!

Happy conference , happy testing, and may you always find (and fix) the bug you are looking for. !!!

James Whittaker et al